

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

690 Walnut Ave.St. 150

Vallejo, CA 94592-1133

(707) 649-5453

(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-016246**Date Inspected:** 17-Aug-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1830**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

A). Field Splice E1/E2

B). Field Splice E2/E3

C). Field Splice E4/E5

A). Field Splice E1/E2

The QAI observed the welder, James Zhen, perform the Complete Joint Penetration (CJP) welding on the longitudinal field splice identified as WN: 1E-2E-A-LS1. The welding was performed on the "A" face of the weld joint utilizing the Shielded Metal Arc Welding (SMAW) as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0 and the weld inspection was performed by John Pagliero utilizing the WPS as a reference. The QC inspector verified the DC welding parameters and were observed and recorded by the QAI as 128 amps. The welding was performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical. The minimum preheat temperature of 100 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents.

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Later in the shift the QAI observed Mr. Zhen grinding the "B" Face of the weld joint and at the conclusion of the grinding the QC technician, James Cunningham, performed the Magnetic Particle Testing of the back gouge and two linear indications were noted by the technician. Mr. Zhen removed the indications by grinding and the QC technician performed a second test and no indications were noted. At the conclusion of the testing the welder continued the CJP welding on face "B".

### B). Field Splice E2/E3

The QAI observed the welder, Xiao Jian Wan ID-9677, correcting the excessive root opening utilizing the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1012-3, Rev.0. This work was performed on the longitudinal stiffener field splice identified as WN: 2E-3E-A-LS3 and the inspection was performed by Mr. Pagliero utilizing the WPS as a reference. The QC inspector verified the welding parameters and were observed and recorded by the QAI as 121 amps. The welding was performed in the vertical (3G) position with the work placed in an approximately vertical plane and the groove approximately vertical. The minimum preheat temperature of 100 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with the contract documents. The electrodes were stored in electrically heated, thermostatically controlled oven after removal from sealed containers. The exposure limits of the electrodes identified as E9018-H4R and the minimum storage oven temperature of 250 degrees Celsius appeared to be in compliance with the contract documents. The welder completed the correcting of the root opening and the QAI observed the QC inspector perform a dimensional survey of the root opening and the included angle prior to the CJP welding. No issues were noted by the QC inspector and the welder commence the welding of the groove joint.

### C). Field Splice 4E/5E

The QAI observed the Ultrasonic Testing (UT) on the side plate field splice identified as WN: 4E-5E-E1 and E2. The testing was performed by the QC technician Steve McConnell utilizing a G.E./Krautkramer USM 35X and the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4. The QC technician performed the required longitudinal wave testing for base metal soundness followed by the shear wave technique for weld soundness which was performed utilizing a .75 x .75 rectangular transducer.

### QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

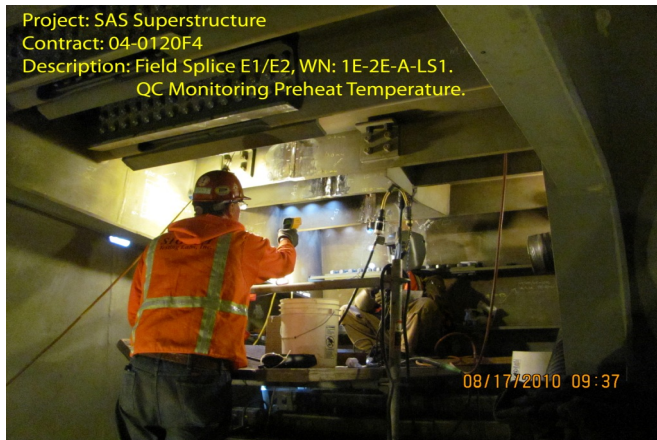
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The digital photographs below illustrate the work observed during this scheduled shift.



### Summary of Conversations:

There were general conversations with Quality Control Inspector Mike Johnson at the start of the shift regarding the location of American Bridge/Fluor welding personnel and inspection/ N.D.E. testing scheduled for this shift.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Reyes,Danny	Quality Assurance Inspector
<b>Reviewed By:</b>	Levell,Bill	QA Reviewer

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